

Recommended Environmental Protection Measures

for

Link Road, St John's
Phase 3, Hedge End



ARCH ASSOCIATES
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

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Link Road
St John's Phase 3
Hedge End

Client:
Foreman Homes

ISSUE		A	B	C
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CONTENTS

1.0 Introduction

2.0 Recommended Protection Measures



1.0 Introduction

Arch Associates Limited has been commissioned by Foreman Homes to provide the recommended environmental protection measures for the planned link road construction works at St John's Phase 3, Hedge End.

Although this document has been prepared specifically in relation to protection of the drainage system and watercourse, many of the elements are general and relate to basic good practices on site.

The construction proposals involve a new link road to connect the St John's development to the existing roundabout on Dodwell lane to the southeast.

As the proposal is purely for the road itself, with associated highway adjustment works to the roundabout, the temporary drainage implications are not as onerous as they would otherwise have been if the proposals had included the construction of housing units, as once the road is completed the drainage is commissioned immediately.

Until the tarmac layers are laid, the road subbase will be permeable and will provide filtration of the run-off. The run-off will also flow through vegetation and therefore will be well filtered.

There is an existing watercourse (watercourse 1) running through the site, which the new road will be crossing and therefore a new culvert arrangement is proposed as per the planning arrangement. In addition, the watercourse is the proposed outfall for the finalised surface water drainage system. A large balancing pond, as well as a filter manhole, are provided within the design that will act as the necessary water treatment in the finalised condition. A second watercourse (watercourse 2) runs north to south and will be culverted under the proposed new road construction.

This report looks at the temporary measures required to protect the environment, including the watercourses, from pollution during construction.



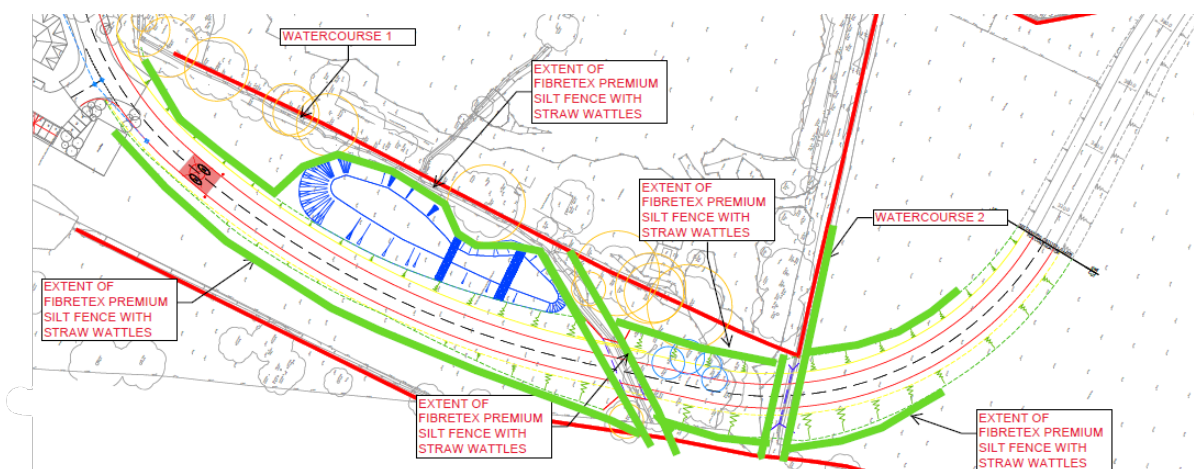
2.0 Recommended Protection Measures

Construction of specialist silt fence alongside the watercourses

Prior to construction of the new road, a specialist silt fence is to be installed as per the diagram below. This is to be in the form of a Terrastop Premium solution by Hy-Tex, or similar approved, and installed in accordance with the manufacture's recommendations. In addition, two lines of straw a line of Hy-Tex straw wattles are to be placed in front of the silt fence to help slow the water down and provide additional filtration. The wattes should be placed 1m apart.

A similar arrangement is to be placed to both sides of watercourse 2 within 50m of the construction works.

The protection measures are to be inspected daily by the site management and any defects repaired immediately.



Proposed works layout showing layout of silt fence and straw wattle protection to watercourses



Example of Terrastop Premium on a working site



Example of Hy-Tex straw wattles on a working site

Stockpiles & Storage Mounds

During the initial stages of the project stockpiling of materials will be necessary, the following measures will be utilised: -

- Stockpiles exist for the shortest possible time
- Do not build steep-sided or sharp-edged stockpiles or mounds
- Whenever possible, keep stockpiles or mounds away from the site boundary, sensitive receptors, and surface drains
- Re-use hard core materials where possible



Waste disposal / burning

- No burning of any materials is permitted on site
- All excess materials should not be wasted, but used or safely removed from site according to appropriate legislation
- Full implementation of the Contractor's site waste management plan
- Securely cover skips when not required
- Label all waste storage and skips, detailing the type of waste
- Employ a just-in-time policy to deliver materials to reduce the storage on site
- Consider using recycled materials and recycle any materials used on site rather than disposing of them (including concrete, timber, aggregate, soil)
- Set up temporary storage area for reclamation

Dealing with spillage

- Spillage kit must be available at all times and in a well-known location for the site operatives
- bunded area for any liquid transfers such as refuelling and pouring of chemicals which could spill
- Regularly inspect the site area for spillages
- Clean spillages using agreed wet handling methods.

Tarmac Laying and use of bitumen

- Do not overheat bitumen and cover pots
- Use great care in all processes to prevent spillages and extinguish any accidental fires immediately

Plant Vehicles & not road mobile machinery (NRMM)

- All non-road mobile machinery (NRMM) should use fuel equivalent to ultra-low sulphur diesel (ULSD). This measure will automatically reduce particulate emissions.
- Actively encourage the use of an appropriate exhaust after-treatment from the approved list for the non-road mobile machinery
- No vehicles or plant will be left idling unnecessarily
- NRMM (vehicles and plant) should be well maintained. Should any emissions of dark smoke occur (except during start up), then the relevant machinery should be stopped immediately, and any problem rectified before being used



- Engines and exhaust systems should be regularly serviced according to manufacturer's recommendations and maintained to meet statutory limits/opacity tests
- All vehicles should hold current MOT certificates where required
- Vehicle exhausts should be directed away from the ground and positioned so they are not directed at site entrances
- Locate plant away from the boundaries close to residential areas
- Speed limit on site is to be set a 5mph
- Control queuing or parking of vehicles outside the site, both during and before the site opens, utilising the approved delivery strategy
- Avoid use of diesel- or petrol-powered generators by using mains electricity or battery powered equipment where possible
- Wash or clean all vehicles effectively before leaving the site
- NRMM (vehicles and plant) should be fitted with appropriate warning lights and reversing alarm.

Waste Removal

Foreman Homes' appointed groundworker will formulate a site waste management plan; the principles contained within the site waste management plan are always to be followed. The contractor will provide segregated waste skips for use by all subcontractors for metal, timber, and plasterboard, as well as general / municipal waste and other relevant waste streams. Wheelie bins will be required within the building for ease of transportation and segregation. All skips will be covered when possible and at least overnight. It is the responsibility of each sub-contractor to segregate their waste into the appropriate bins. All sub-contractors will be responsible for maintaining the cleanliness of their work areas and disposal of their waste (to the designated skips) as it is generated and not when it has become a safety hazard or impeding other works.

All the demolition works will be carried out by others after the construction works commencing on site. The demolition works will have followed the demolition RAMS set up by the ICE (Institution of Civil Engineers), and any temporary works independently checked by a structural Eng. This protocol provides best practice on aspects such as building audits and use of recycled materials to be reused on site or elsewhere. The demolition crush material will be certified 6F or similar enable re-use on site. Where possible targets set within the protocol will be incorporated into the site waste management plan.



Disposal of hazardous or specialist waste (for example fluorescent tubes) is the responsibility of the subcontractor. The subcontractor must comply with the contractor's environmental policy. The subcontractor is to provide suitable means to transport the waste to the skips. The site will be registered with the environment agency as a waste producer. Areas on site will be set aside for recycling various materials for reuse on site, i.e., timber, metals.

Material Storage & Distribution

Distribution of material is the responsibility of the subcontractor. Due cognisance must be paid to the environment in which the works are being carried out. Storage will only be permitted within the allotted area for each sub-contractor. The use of mobile racking systems for pipe work, electrical containment, loose long length items etc. will be actively pursued. The storage of flammable materials (e.g., gas containers) will be outside the building using suitable cages. All materials delivered to site must be unloaded & where possible taken to the agreed storage locations.

Wherever possible, materials should be delivered on pallets to facilitate distribution by use of pallet trucks, however, pallets must be collected and returned when they have been finished with and then removed from site. The minimum requirement for storage of flammable fuels (diesel etc.) will be within a covered, bunded bowser. Where petrol is required, this should be contained in a steel jerry can with the maximum of 5 gallons allowed to be on site at any one time. The container should be clearly labelled with its contents, highly flammable signage, and a fireproof cabinet should be provided for it to be stored in when not in use.

Cutting, grinding & Sawing

Ideally these activities should not be conducted on site and prefabricated materials should be brought in where possible. In cases where such work must take place, then the following techniques should be followed:

- Contractors undertaking activities that require hot permits are to ensure the safety of the operative carrying out the work
- All the equipment should use water suppressant or suitable local exhaust ventilation systems. The water used in this process must be contained and removed from site, not allowed to enter the surface water drainage system.
- Use dust extraction techniques where available



- Cutting and grinding to take place in screed area only
- Service all fan and filters regularly to ensure that they are properly maintained

Scabbling

- Pre-wash work surface before starting the scabbling activity. The water used in this process must be contained and removed from site, not allowed to enter the surface water drainage system.
- Screen off work area
- Vacuum up all dusty residue rather than sweeping away

Site monitoring protocols

Site Management will:

- Carry out daily site inspections, as well as monitoring the site & boundary daily
- Coordinate & manage all deliveries to site, including booking-in procedure
- Manage entry & exit to site of all deliveries & vehicles
- Ensure all delivery drivers are aware of site rules, re deliveries, speed limits & reversing etc.
- Ensure all drivers sign in and advise of mileage etc. for monitoring
- Check / inspect external site boundaries and areas daily
- Check / inspect wheel wash and haul road
- Monitor site noise and record
- Maintain logbooks
- Keep an accurate log of complaints from the public
- Ensure that all plant & equipment is to be inspected weekly and recorded

Tree Protection

Damage to trees during the construction phase should be prevented by the erection of the protective fencing forming tree protection zones. All personnel should be made aware of the limitations that apply to these. Any defects or damage to trees during construction should be brought to the attention of the site Arboriculturist immediately, so that any remedial works that may be required can be arranged. A protective fence will be erected prior to the commencement of any site works where required. Protective fences must be constructed in line with BS 5837: 2005 and be fit for the purpose of excluding any construction activity.



Minimising Nuisance During Construction Works

External areas: The external areas to the site will be monitored for litter, detritus, graffiti & fly posting by the site team and inspections will be recorded daily. The criteria will be based on the ENCAMS Local Environmental Quality Survey of England (LEQSE), which uses the Environmental Protection Act (EPA) litter and detritus A, B, C and D guidelines to grade the condition of the area. ENCAMS have developed the EPA litter and detritus guidelines further, to incorporate graffiti and fly posting on the same basis.

The site intends to maintain the following Grading standards for the following: -

- Litter Grade B
- Detritus Grade B
- Graffiti Grade B
- Flyposting Grade B